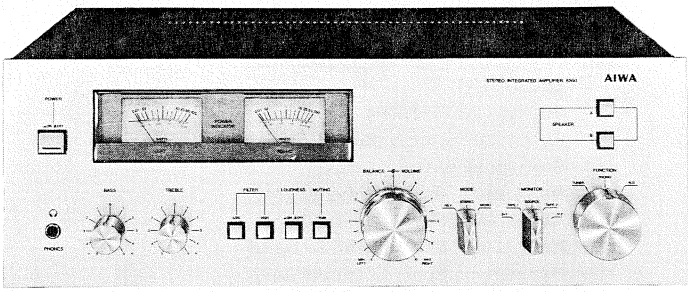
STEREO INTEGRATED AMPLIFIER

MODEL NO. AA-8300H, U, E, K, G

AIWA®

[SERVICE MANUAL]



Code No. 08-830-000-51

DATE OF ISSUE 11/1979

SPECIFICATIONS

Semi conductors: 2 ICs, 30 transistors; 21 diodes

<Main Amplifier Section>

Continuous power output: 45 watts* per channel, min. RMS both channels driven at 8 ohms or 50 watts* per channel both channels driven at 4 ohms from 20 to 20,000 Hz with no more than 0.1% total harmonic distortion.

Dynamic power output: (1 kHz) 50W + 50W (8 ohms), 65W + 65W (4 ohms)

Power output: (DIN 45 500) 60W + 60W (4 ohms)

Total harmonic distortion: (20 to 20,000 Hz, from AUX) No more than 0.1% (continuous rated power output)

Intermodulation distortion: (60 Hz: 7,000 Hz = 4 : 1, from AUX) No more than 0.1% (continuous rated power output)

Output: Speaker A, B (4 ~ 16 ohms); A + B (8 ~ 16 ohms)

Headphone 4 ~ 16 ohms

Damping factor: 45 (20 to 20,000 Hz, 8 ohms)

Power bandwidth (IHF): 10 Hz ~ 40 kHz

<Pre Amplifier Section>

Input sensitivity/impedance:
PHONO 2.5mV/47 kohms
AUX 150mV/47 kohms
TAPE MONITOR-1 150mV/47 kohms
TAPE MONITOR-2 (DIN) 150mV/47 kohms

Overload level (Max. input level): (T.H.D. 0.5% 1 kHz)
PHONO 130mV
AUX Not less than 5V

Output level/impedance: (5mV PHONO input)
TAPE MONITOR-1 280mV/1 kohms
TAPE MONITOR-2 (DIN) 100mV/90 kohms

Frequency response:
PHONO 30Hz to 15,000 Hz +0.3 dB -0.3 dB (RIAA)
AUX, TAPE IN 10Hz to 50,000 Hz +0.2 dB -2.0 dB

Tone control:
BASS ±10 dB (100 Hz)
TREBLE ±10 dB (10 kHz)

Filter:
LOW 30 Hz (12 dB/oct.)
HIGH 10 kHz (12 dB/oct.)

Loudness contour: (Volume control set at -40 dB position) +8.5 dB (100 Hz), +4 dB (10 kHz)

Hum & noise (IHF, short circuited A network, rated power):
PHONO 80 dB
AUX, TAPE IN 90 dB

Signal-to noise ratio (DIN 45 500): PHONO, AUX, TAPE IN 55 dB

Channel crosstalk (DIN 45 500): AUX, TAPE IN 45 dB (1 kHz)

<Miscellaneous>

Power requirements:
AA-8300U 120V, 60 Hz
AA-8300K, G 240V, 50/60 Hz
AA-8300E 220V, 50/60 Hz
AA-8300H 120/220/240V (switchable), 50/60 Hz

Power consumption:
AA-8300U 150 watts
AA-8300K, G 300 watts
AA-8300E 290 watts
AA-8300H 95 watts

Dimensions (overall): 420(W) x 150(H) x 330(D) mm
16-9/16(W) x 5-15/16(H) x 13-3/4(D) in.

Weight (net): 9.5 kg/20.9 lbs

NOTE: Specifications and design subject to possible modification without notice.
*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers. (Applicable to the U.S.A. only)

PARTS LIST

MECHANICAL PARTS

Ref. No.	Part No.	Part No. Changed to	Description	Q'ty	
1	82-738-641-01		Front panel Ass'y	1	
2a	82-738-654-01		Cabinet (H,E,K,G model only)	1	
2b	82-738-673-01		Cabinet (U model only)	1	
3	82-738-643-01		Ornamental board	1	
4	82-736-643-01		Meter frame	1	
5	82-738-642-01		Meter ornamental board	1	
6	82-738-656-01		Ornamental punching board	1	
7	82-738-604-01		Rear chassis	1	
8	82-738-645-01		Knob (for FUNCTION)	1	
9	82-738-646-01		Knob (for MODE, MONITOR)	2	
10	82-738-647-01		Knob (for TREBLE, BASS)	2	
11	82-738-648-01		Knob (for BALANCE)	1	
12	82-738-649-01		Knob (for VOLUME)	1	
13	82-736-648-01		Button (for FILTER, LOUDNESS, MUTING SPEAKER)	6	
14	82-738-651-01		Button (for POWER)	1	
15	82-736-650-01		Bush, push button (Small)	6	
16	82-736-649-01		Bush, push button (Large)	1	
17a	82-738-666-01		Name plate, Spec. (H model only)	1	
17b	82-738-670-01		Name plate, Spec. (U model only)	1	
17c	82-738-664-01		Name plate, Spec. (E model only)	1	
17d	82-738-608-01		Name plate, Spec. (K model only)	1	
17e	82-738-660-01		Name plate, Spec. (G model only)	1	
18	82-737-645-01		Rubber foot	4	

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Q'ty	
1	82-738-851-01		Printed indiv., Packing	1	
2	82-738-852-01		Cushion L, Printed indiv.	1	
3	82-738-853-01		Cushion R, Printed indiv.	1	
4	82-738-854-01		Poly-vinyl sack (for case)	1	
5	82-738-901-01		Instructions booklet	1	
6	87-056-036-01		Guarantee card (U model only)	1	
7	87-056-032-01		Guarantee card (G model only)	1	
8	87-056-009-41		Distributors list (H,E,K,G model only)	1	
9	87-056-008-01		Label, AC power cord	1	
10	87-056-034-01		Service station list	1	
11	87-056-035-01		Card, Limited warranty	1	

AA-8300H,U,E,K,G AA-8300H,U,E,K,G

WIRING

A PHONO/TONE/MAIN AMP AND POWER SUPLLY CIRCUIT BOARD DIAGRAM

SPEAKER-A
SPEAKER-B
PHONE JACK
VU METER
M001
M002
(LIGHT BLU)
(VIL)
(GRN)
(BLU)
(BLK)
(YLW)
(WHT)
(BRN)
(GRY)
(RED)
S8 SPEAKER-B
S9 SPEAKER-A
R1102 330
R1101 330
TO CHASSIS GROUND

D SPEAKER SWITCHING CIRCUIT BOARD DIAGRAM

IN
OUT
A
B

C INPUT AND OUTPUT CIRCUIT BOARD DIAGRAM

C801 0.05
PHONO
TUNER
AUX
TAPE IN / OUT MONITOR-1
MONITOR-2
R803 220K
R802 220K
R801 220K
R804 220K
S1 FUNCTION
S2 MONITOR
S3 MODE
S4 MUTING
S5 LOUDNESS
S6 HIGH FILTER
S7 LOW FILTER
VR501 250KW
VR502a10KB
VR502b10KB

SMOOTHING CAPACITOR
F1001 6A
F1002 6A
F1003 1A
F1004 4A
(U MODEL ONLY)

B TONE CONTROL CIRCUIT BOARD DIAGRAM
TJE-007KB
VR701a 50KB
VR701b 50KB
VR702a 50KB
VR702b 50 KB

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

A PHONO/TONE/MAIN AMP AND POWER SUPLLY CIRCUIT BOARD DIAGRAM

VU METER M002 M001

(LIGHT BLU) (V1L)

S9 SPEAKER-A

SWITCHING CIRCUIT DIAGRAM

AGRAM

APE A OUT

ONITOR-1 MONITOR-2

S1 FUNCTION S2 MONITOR S3 MODE

S4 MUTING S5 LOUDNESS S6 HIGH FILTER S7 LOW FILTER

RY901 L602 RL115 L601 RL115

Q616 Q614 Q613 Q615

SMOOTHING CAPACITOR

B TONE CONTROL CIRCUIT BOARD DIAGRAM

TJE-007HB

E FUSE CIRCUIT BOARD DIAGRAM

F1002 6A F1001 6A F1003 1A F1004 4A (U MODEL ONLY)

T001 POWER TRANSFORMER

VOLTAGE SELECTOR 100V 120V 220V 240V

POWER SW P.C.B

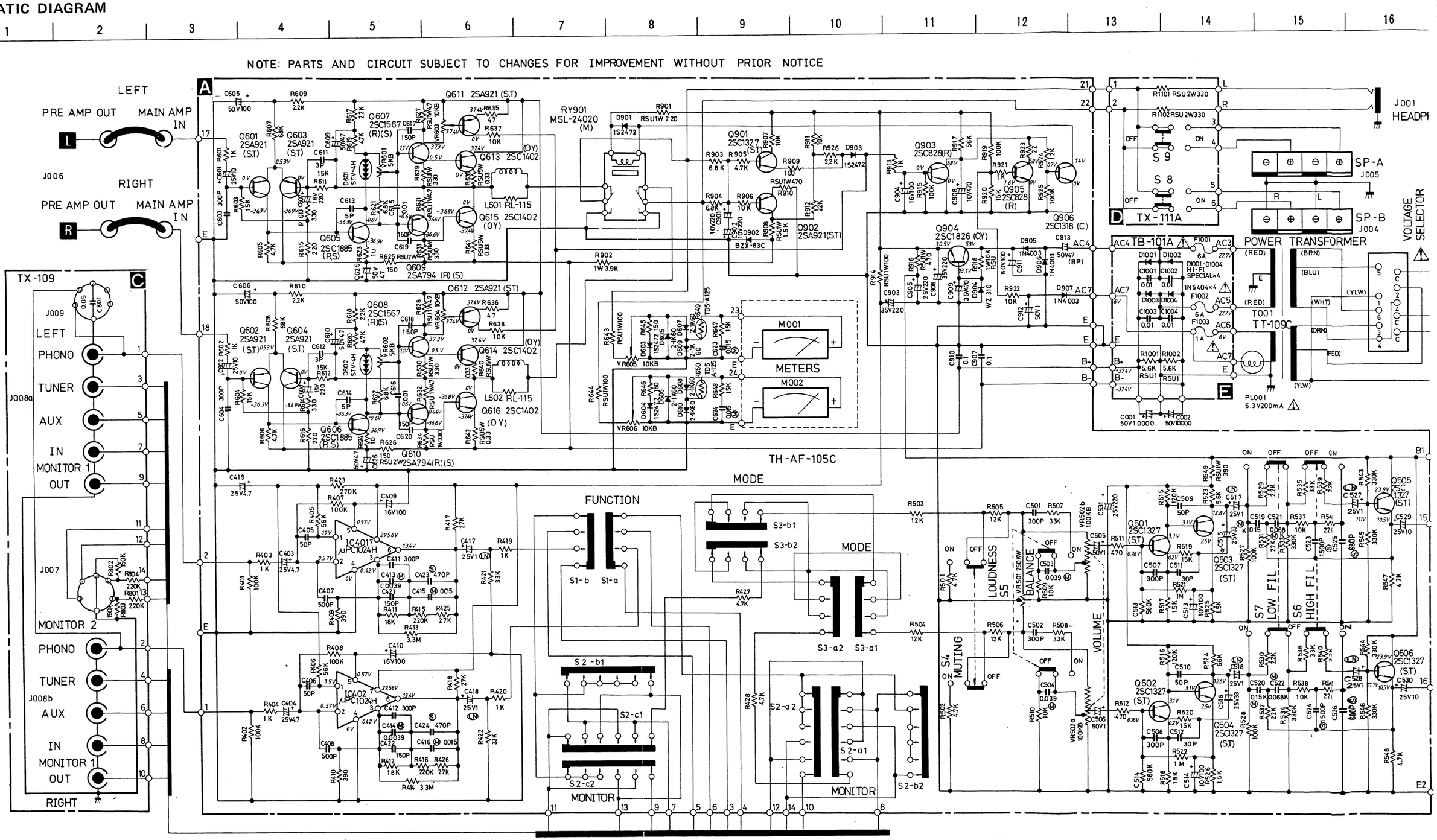
SWITCHED

H, I MODEL K MODEL G MODEL E MODEL

AIWA

SCHEMATIC DIAGRAM

NOTE: PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENT WITHOUT PRIOR NOTICE



NOTES :

RESISTOR

5%--TOLERANCE UNLESS OTHERWISE NOTED
K---KILO OHM
M---MEGA OHM
RSU--METAL OXIDE FILM RESISTORS
NON MARK--LOW NOISE TYPE CARBON RESISTORS

CAPACITOR

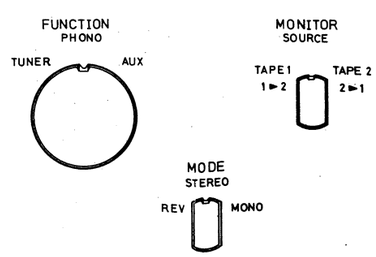
Ⓜ-- MYLAR FILM CAPACITORS
Ⓢ-- POLYSTYRENE FILM CAPACITORS
⧺ -- ELECTROLYTIC CAPACITORS
Ⓛ -- LOW NOISE CAPACITORS
Ⓑ -- BIPOLAR CAPACITORS
NON MARK-- CERAMIC CAPACITORS
UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD
ALL CAPACITANCE TOLERANCES ARE EXPRESSED J(±5%)AND K(±10)

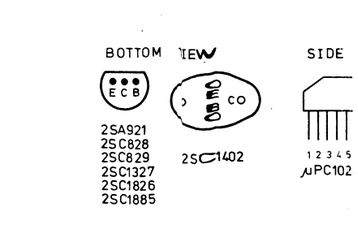
U MODEL

1.CHANGED POWER TRANSFORMER T001
2.CHANGED SPARK KILLER C003,004 FORM 4700PF TO AUM 4700PF
3.ALL FUSE USED LONG SIZE WITH "UL" MARK

E, K, G MODEL

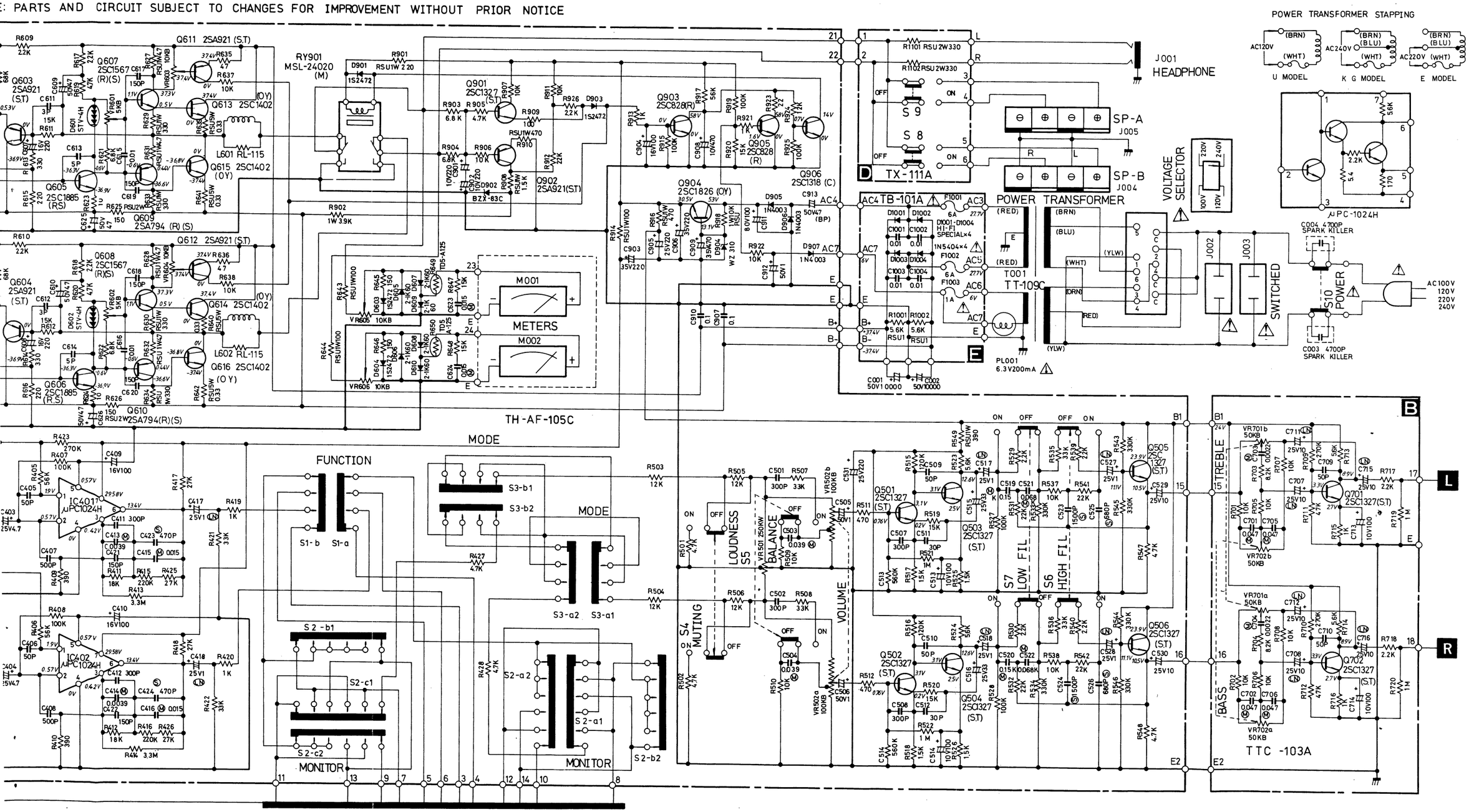
1.CHANGED POWER TRANSFORMER T001
2.CHANGED SPARK KILLER C003,004 FORM 4700PF TO 4700PF Y TYPE
3.CANCELED SWITCHED J002 AND J003
4.ALL FUSES USED MINITURE SIZE WITH Ⓢ Ⓤ MARK





4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

E: PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENT WITHOUT PRIOR NOTICE



CAPACITOR

- Ⓜ -- MYLAR FILM CAPACITORS
- Ⓢ -- POLYSTYRENE FILM CAPACITORS
- # -- ELECTROLYTIC CAPACITORS
- LN -- LOW NOISE CAPACITORS
- BP -- BIPOLAR CAPACITORS

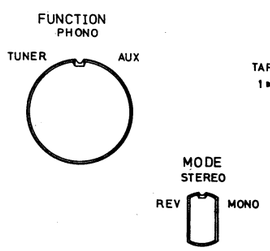
NON MARK -- CERAMIC CAPACITORS
UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD
ALL CAPACITANCE TOLERANCES ARE EXPRESSED J(±5%)AND K(±10)

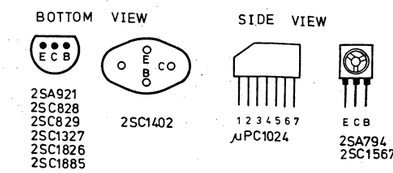
U MODEL

1. CHANGED POWER TRANSFORMER T001
2. CHANGED SPARK KILLER C003,004 FORM 4700PF TO AUM 4700PF
3. ALL FUSE USED LONG SIZE WITH "UL" MARK

E, K, G MODEL

1. CHANGED POWER TRANSFORMER T001
2. CHANGED SPARK KILLER C003,004 FORM 4700PF TO 4700PF Y TYPE
3. CANCELED SWITCHED J002 AND J003
4. ALL FUSES USED MINITURE SIZE WITH Ⓢ Ⓤ MARK





ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪PHONO/TONE/MAIN AMP AND POWER SUPPLY CIRCUIT BOARD SECTION≫		
IC401,402	82-738-623-01	IC, μPC-1024H
Q501~506 901	82-738-614-01	Transistor, 2SC1327 (S,T)
Q601~604 611,612,902	82-738-612-01	Transistor, 2SA921 (S,T)
Q605,606	82-738-616-01	Transistor, 2SC1885 (R,S)
Q607,608	89-315-676-01	Transistor, 2SC1567 (R,S)
Q609,610	82-738-615-01	Transistor, 2SA794 (R,S)
Q613~616	82-738-610-01	Transistor, 2SC1402
Q903,905	89-308-284-01	Transistor, 2SC828 (R)
Q904	82-738-611-01	Transistor, 2SC1826 (O,Y)
Q906	82-738-613-01	Transistor, 2SC1318 (C)
D601,602	82-738-622-01	Diode, STV-4H
D603,604 901,903	82-736-616-01	Diode, 1S2472
D605~610	82-738-619-01	Diode, 2-1K60
D902	82-738-621-01	Zener diode, BZX83C
D904	82-738-620-01	Zener diode, WZ-310
D905~907	82-736-615-01	Diode, IN4003
TR601,602	82-738-633-01	Thermistor, TD5-A125
L601,602	82-738-625-01	Coil, anti-parasitic
S1	82-738-628-01	Rotary switch (FUNCTION)
S2	82-738-627-01	Rotary switch (MONITOR)
S3	82-738-629-01	Rotary switch (MODE)
S4,5,6,7	82-738-626-01	Push switch (MUTING, LOUDNESS, HIGH FILTER, LOW FILTER)
VR501,502	82-738-632-01	Volume, 250kΩ–W+100kΩ –Bx2 (BALANCE, VOLUME)
VR601,602	82-738-630-01	Semi-fixed resistor, 5kΩ-B
VR603,604 605,606	82-738-631-01	Semi-fixed resistor, 10kΩ-B
RY901	82-738-624-01	Relay, MSL24D-O (M)
≪TONE CONTROL CIRCUIT BOARD SECTION≫		
Q701,702	82-738-614-01	Transistor, 2SC1327 (S,T)
VR701,702	82-738-635-01	Volume, 50kΩ-Bx2 (TREBLE, BASS)
≪INPUT AND OUTPUT CIRCUIT BOARD SECTION≫		
J003a,b	82-738-640-01	Pin jack, 10P
J007,009	82-737-676-01	DIN jack, 5P (PHONO, MONITOR-2)
≪SPEAKER SWITCHING CIRCUIT BOARD SECTION≫		
S8,9	82-738-639-01	Push switch (SPEAKER-A,B)
≪FUSE CIRCUIT BOARD SECTION≫		
D1001~1004	82-738-638-01	Diode, 1N5404
⚠ F1001,1002	82-738-668-01	Fuse, 6A (H model only)
⚠ F1001,1002	82-738-671-01	Fuse, 6A (U model only)
⚠ F1001,1002	82-738-636-01	Fuse, 6.3A (E,K model only)
⚠ F1001,1002	82-738-661-01	Fuse, 6A (G model only)
⚠ F1003	82-738-669-01	Fuse, 1A (H model only)
⚠ F1003	82-738-672-01	Fuse, 1A (U model only)
⚠ F1003	82-738-637-01	Fuse, 1A (E,K model only)
⚠ F1003	82-738-662-01	Fuse, 1A (G model only)

Symbol No.	Part No.	Description
≪MISCELLANEOUS≫		
⚠T001	82-738-667-01	Power transformer (H model only)
⚠T001	82-738-679-01	Power transformer (U model only) (E,K,G model only)
⚠S10	82-738-660-01	Push switch (POWER) (H,E,K,G model only)
⚠S10	82-736-605-01	Push switch (POWER) (U model only)
M001,002	82-738-603-01	Watt meter
PL001	82-736-600-01	Pilot lamp 6.3V 200mA
J001	82-738-602-01	6.3φ Jack (PHONES)
J006	82-738-606-01	Pin jack, 4P
J002,003	82-737-604-01	AC outlet socket (H,U model only)
	82-738-605-01	Push terminal, 4P
⚠	82-737-662-01	Voltage selector (H model only)
⚠	82-737-607-01	AC power cord (H,U model only)
⚠	82-737-659-01	AC power cord (E model only)
⚠	82-737-649-01	AC power cord (K model only)
⚠	82-737-654-01	AC power cord (G model only)
		<Capacitors>
⚠C003,004	82-737-675-01	Spark Killer 4700pF (H,G model only)
⚠C003,004	82-737-673-01	Speak Killer 470pF (U,C model only)
⚠C003,004	82-737-674-01	Spark Killer 4700pF (E,K model only)

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designed part.

ELECTRICAL ADJUSTMENT

1. Power Amplifier Bias Adjustment

Instrument: DC Milli-Voltmeter.
Settings:

1. Set Volume Control to minimum position. (no signal input)
2. Set Potentiometer VR601 to clockwise position and VR602 to counter-clockwise position before starting this procedure.

Method:

1. Connect the plus lead of DC Milli-Voltmeter to Test Point No.19 and minus lead to B-.
2. Adjust the Potentiometer VR 601 to obtain a 6.6 mV reading on the DC Milli-Voltmeter.
3. Repeat the above step 1 and 2 for Right Channel (used Test Point No.20 and Potentiometer VR602).

2. Overload Protection Level Adjustment

Instruments: Audio Generator and H.D.Analyzer.
Settings:

1. Set Function Selector to "AUX" position.
2. Set Bass and Treble Control to "0" (center) position.
3. Set Muting, Loudness, High Filter and Low Filter Switch to "OFF" position.
4. Set Mode Switch to "MONO" position.
5. Set Potentiometer VR603 and VR604 to clockwise position before starting this procedure.
6. Set Volume Control to maximum position.

Method:

1. Connect 2.26 ohm 100 W load to speaker-A Terminal (L-ch or R-ch), then connect H.D. Analyzer in parallel.
2. Connect Audio Generator to "AUX" Terminal (L-ch or R-ch), and apply 1KHz (sine wave) signal.
   Adjust input level so that reading on H.D. Analyzer is 1% distrotion.
3. Adjust Potentiometer VR603(VR604 for R-ch) so that the protection Relay is disengaged.
4. Adjust input level to confirm that the Relay remains activated when the output distrotion is 1%.

3. Meter Calibration Adjustment

Instruments: Audio Generator and AC VTVM.
Settings:

1. Set Function Selector to "AUX" position.
2. Set Bass and Treble to "0" (center) position.
3. Set Muting, Loudness, High Filter and Low Filter Switch to "OFF" position.
4. Set Mode Switch to "MONO" position.
5. Set Potentiometer VR605 to clockwise position and VR606 to counter-clockwise position before starting this procedure.
6. Set Volume Control to maximum position.

Method:

1. Connect 8 ohm 50W load to speaker-A Terminal (L-ch and R-ch).
2. Connect AC VTVM in parallel with this 8 ohm load of L-ch or R-ch.
3. Connect Audio Generator to "AUX" Terminal and apply 1KHz (sine wave).
   Adjust input level so that reading on AC VTVM is 8.95 V (10 W/8 ohm).
4. Adjust Potentiometer VR605(VR606 for R-ch) so that Meter indicates 10 W.
5. Then descrease input level by 10 dB (output 1.W=2.83 V/8 ohm) and make sure Meter indicates 1 W.

AIWA CO.,LTD.

Printed in Japan